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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Jean-Jacques Caboche

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EXAMINER

OLSON, ERIC

ART UNIT

PAPER NUMBER

1623

NOTIFICATION DATE

DELIVERY MODE

06/30/2010

ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

DocketingDept@young-thompson.com

<b>Office Action Summary</b>	<b>Application No.</b> 10/030,002	<b>Applicant(s)</b> CABOCHE ET AL.	
	<b>Examiner</b> ERIC S. OLSON	<b>Art Unit</b> 1623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 19-22,24,31-42,44-47 and 49 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-22,24,31-42,44-47 and 49 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)                        | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

### **Detailed Action**

This office action is a response to applicant's communication submitted May 25, 2010 wherein claims 19, 24, 36-38, 41, 45, and 46 are amended and claims 23, 43, 48, and 40 are cancelled. This application is a national stage application of PCT/FR00/01109, filed April 26, 2000, which claims priority to foreign application FR99-05523, filed April 30, 1999.

Claims 19-22, 24, 31-42, 44-47, and 49 are pending in this application.

Claims 19-22, 24, 31-42, 44-47, and 49 as amended are examined on the merits herein.

### **Withdrawal of Finality**

The finality of the office action submitted May 25, 2010 is withdrawn in view of the new grounds of rejection presented herein.

Applicant's arguments, submitted May 25, 2010 with respect to the rejection of instant claims 31-37 and 39-44 under 35 USC 112, second paragraph, for reciting a broad limitation followed by a narrow limitation, has been fully considered and found to be persuasive to remove the rejection as the second limitation is seen to be directed to a different property of the polysaccharide that is different from its degree of substitution. Therefore the rejection is withdrawn.

Art Unit: 1623

Applicant's amendment, submitted May 25, 2010, with respect to the rejection of instant claims 19-22, 31-47, and 49 under 35 USC 103(a) for being obvious over Okada et al. in view of Senkeleski et al. in view of Sandstrom et al., has been fully considered and found to be persuasive to remove the rejection as the claims have been amended to require that the branching enzyme being used is of a specific type other than those recited in the references. Furthermore, as discussed below, there is no assurance that the products of such a process would necessarily have branch points every 10 to 14 glucose residues as required in the claims. Therefore the rejection is withdrawn.

### **Foreign priority**

This application claims foreign priority to foreign application FR99-05523, filed April 30, 1999. However, the certified copy received in this application is in French with no certified translation into English. Therefore the claims are not given priority to the filing date of the foreign application.

The following new grounds of rejection are introduced:

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 22 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. This claim specifies that the branching enzyme is extracted

Art Unit: 1623

from organisms selected from the group consisting of higher plants, yeasts, bacteria, and unicellular algae. However, the base claim 19 requires that the branching enzyme be extracted from unicellular algae. Therefore claim 22 fails to further limit the base claim.

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 19-22, 24, 31-42, 44-47, and 49 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant's amendment submitted February 10, 2009 with respect to the aforementioned claims has been fully considered and but is deemed to insert **new matter** into the claims since the specification as originally filed does not provide support for branched polymers of glucose having a branching point every 10 to 14 glucose residues. As the instant specification as filed contains no description of the frequency and arrangement of branch points in the synthesized glucose polymers, the specification as originally filed does not provide support for the subject matter of instant claims 19-22, 24, 31-42, 44-47, and 49. See *in re Smith*, 458 F.2d 1389, 1395, 173 USPQ 679, 683 (CCPA 1972). In the arguments accompanying the amendment of February 10, 2009, Applicant

Art Unit: 1623

appears to argue that the subject matter of this amendment is supported in the original disclosure because it is an inherent property of the branching enzyme used in the methods described in the specification. Firstly, Applicant has provided no actual evidence for this claim that would serve as the basis for such a finding. Secondly, Applicant has not shown that this property is present for all possible branching enzymes recited in the claims under the claimed conditions, for example all such enzymes extracted from unicellular algae or from maize. Moreover, the claims, particularly claims 38, 42, 44, and 48, are directed to both starch branching enzymes and glycogen branching enzymes. Amylopectin starch and glycogen are different molecules with different branching patterns, and the enzymes that synthesize them will not necessarily have the same specificity. Still further the enzymes are isolated from different species, for example *C. reinhardtii* and maize. Therefore even if it were shown that one particular branching enzyme, for example *C. reinhardtii* glycogen branching enzyme, inherently produced the claimed branching pattern, it would not therefore follow that other enzymes, such as maize starch branching enzyme, would produce the same pattern.

Applicant's attention is drawn to the non-patent literature reference Guan et al. (Reference U included with PTO-892) Guan et al. discloses a comparison of two starch branching enzymes (SBEI and SBEII) from maize with glycogen branching enzyme from *E. coli*. (p. 94 left column first paragraph) The branched products produced by the starch branching enzymes I and II had different branching characteristics and chain lengths. (p. 95 left column first paragraph, also figures 2 and 3) In addition, branching characteristics differed with reaction time. The authors also note that the chain lengths

Art Unit: 1623

observed are different from those observed in previous studies of the same enzymes under different reaction conditions.

Furthermore another paper by Guan et al. (Reference V included with PTO-892) discloses the construction of transformed GBE-deficient *E. coli* expressing maize starch branching enzymes in place of the native glycogen branching enzyme. (p. 964 right column paragraphs 3-7) This organism produced a glycogen-like polysaccharide having a chain length between that of wild-type *E. coli* glycogen and maize amylopectin. (p. 965 right column paragraph 2) Therefore the product produced by the starch branching enzyme is affected by the cellular environment in which it is expressed.

Based on this evidence, one skilled in the art would conclude that a particular branching pattern is not an inherent property of a particular enzyme, much less of all possible branching enzymes, but is rather unique to a particular enzyme under particular reaction conditions.

Therefore the specification as originally filed does not provide support for the limitation that the polysaccharide contains an additional chain (i.e. a branch point) every 10 to 14 glucose residues.

Applicant's attention is further drawn to the PCT international publication WO00/18893. (Reference and English machine translation included with PTO-892) This document describes the starch branching enzymes isolated from unicellular algae. (p. 1 line 31 - p. 2 line 2) In one example, branching enzymes are obtained from a culture of *Chlamydomonas reinhardtii*. (p. 13 line 15 - p. 14 line 25) This enzyme is shown to be

Art Unit: 1623

capable of branching starch when 131 units are incubated in a starch solution at 30 degrees C overnight. (p. 17 line 21 - p. 18 line 25)

In view of the arguments made above with regard to the support of the limitation of having a branch point every 10 to 14 glucose residues, one of ordinary skill in the art would not have had any particular motivation to make polysaccharides having that particular branching pattern using the algal branching enzymes described by WO00/18893. However, if the claims were amended to remove this limitation, Applicant is advised that it would have been obvious to one of ordinary skill in the art to use the algal branching enzymes described in this reference in the methods of Senkeleski et al. and Sandsrom et al. as was described previously for the reference Okada et al. in the previous office action. Furthermore any evidence submitted proving that this particular chain distribution is inherent to the *Chlamydomonas reinhardtii* starch branching enzyme would serve as evidence that this claim element would be necessarily present in any glucan produced by the branching enzymes of WO00/18893.

It is also noted that the foreign priority document FR99-05523 cannot serve to antedate the reference WO00/18893 as no certified English translation of this document has been filed.

Still further, if the limitation that the glucose polymer has a branch point every 10 to 14 glucose units were removed from the claims it would also have been obvious to one of ordinary skill in the art to use the maize branching enzymes whose isolation and *in vitro* synthetic use is described by Guan et al. (References U and V included with



Art Unit: 1623

PTO-892) in the methods of Senkeleski et al. and Sandsrom et al. as was described previously for the reference Okada et al. in the previous office action. As described above, if Applicant were to convincingly demonstrate that maize starch branching enzymes inherently produce the claimed chain distribution in their branched products, this evidence would also render the claims obvious over these references as it would have been convincingly shown that this chain distribution is necessarily present in the products.

### **Conclusion**

No claims are allowed in this application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ERIC S. OLSON whose telephone number is (571)272-9051. The examiner can normally be reached on Monday-Friday, 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shaojia Anna Jiang can be reached on (571)272-0627. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1623

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Eric S Olson/  
Examiner, Art Unit 1623  
6/21/2010